



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE DEGREE OF
BACHELOR OF SCIENCE IN BACHELOR OF SCIENCE IN ANIMAL SCIENCE

2013/2014 ACADEMIC YEAR

APT 3123: ECOLOGY AND CLIMATE CHANGE

Instructions:

1. This paper consists of **TWO** sections, **A** and **B**.
2. Answer **ALL** questions from section **A** and any **TWO** from section **B**.
3. Write all answers in the booklet provided.

SECTION A [30 MARKS]

Answer ALL questions from Section A.

1. (a) Explain, giving examples, the terms autotrophs and heterotrophs. [2marks]
- (b) Illustrate schematically, how biotic and abiotic components of an ecosystem combine to form biosystems. [4marks]
- (c) Using illustrations, describe in ecological context, the terms:
 - (i) Food chain, [2marks]
 - (ii) Food web. [2marks]
2. (a) Explain the nexus between climate change and global warming. [3marks]
- (b) State and explain any three mitigating strategies to climate change. [2marks]
- (c) Present and briefly explain a trophic classification of living organisms. [5marks]
3. (a) Identify and describe the two types of receptors that detect temperature changes in the mammalian body. [3marks]
- (b) State and explain the main components of a negative feedback mechanism. [3marks]
- (c) What is an ecological pyramid? Describe the three main ecological pyramids. [4marks]

SECTION B [40 MARKS]

Answer ANY TWO questions from Section B.

4. (a) Discuss the mechanisms through which mammalian body respond to heat and cold. [12marks]
- (b) Discuss briefly the principle of Growing Day Degree and its use in agriculture. [8marks]
5. (a) Discuss the factors that regulate population size in an ecosystem. [10marks]
- (b) Present a graphical model depicting the major ecosystem components and their interrelationships. [10marks]
6. (a) Comment briefly on the following terms, give examples:
 - i) Abiotic components of an ecosystem. [4marks]
 - ii) Ecology and civilization. [3marks]
 - iii) Biological resources. [3marks]
- (b) Discuss briefly, the principle of energy and matter flow in an ecosystem. [10marks]